



# Vermont's Clean Water Investments & Results SFY 2016-2020

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# Presentation Outline

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- Background
- *Vermont Clean Water Initiative 2020 Performance Report*  
Purpose & Scope
- Part 1: Vermont's Clean Water Investments
- Part 2: Lake Champlain TMDL Progress Report
- Clean Water Interactive Dashboard

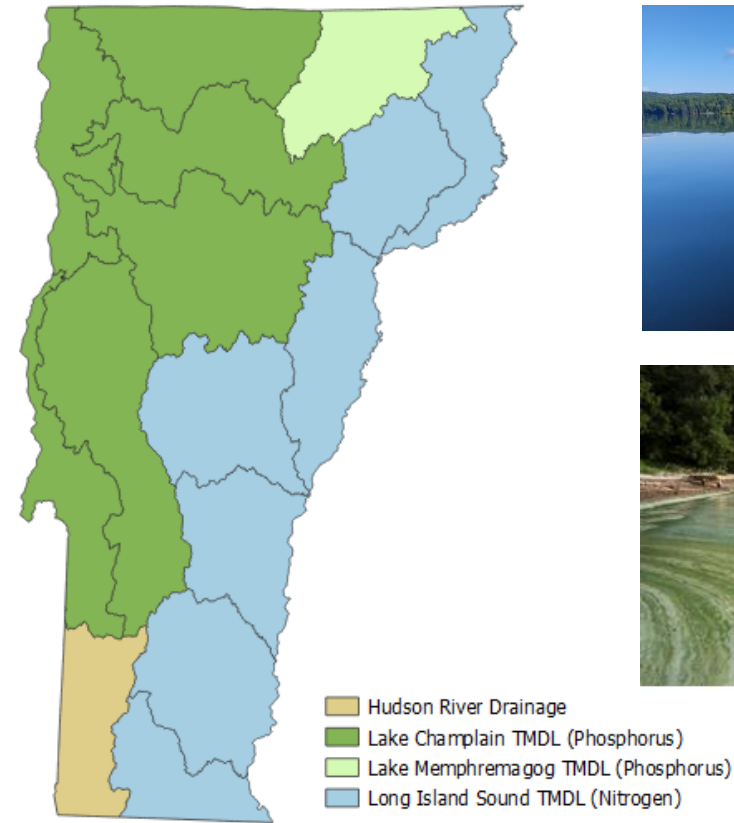
## VERMONT CLEAN WATER INITIATIVE 2020 PERFORMANCE REPORT



AGENCY OF ADMINISTRATION  
AGENCY OF AGRICULTURE, FOOD & MARKETS  
AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT  
AGENCY OF NATURAL RESOURCES  
AGENCY OF TRANSPORTATION

# Vermont's Water Quality

- Clean water provides safe drinking water sources, supports recreation and fosters tourism
- Some waters suffer from excess pollution, such as nutrients or sediment
- Clean water restoration plans – Total Maximum Daily Loads (TMDLs) – identify the maximum amount of pollutant a water can receive and still meet Vermont water quality standards





# Clean Water Projects



**AGRICULTURE**

Addresses runoff and soil erosion from farm production areas and farm fields.



**ROADS**

Addresses stormwater runoff from roads



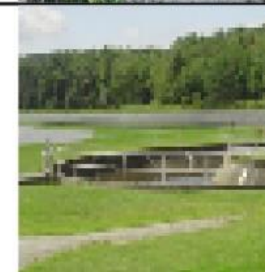
**NATURAL RESOURCES**

Restores functions of “natural infrastructure”—river channels, floodplains, lakeshores, and wetlands



**WASTEWATER**

Decreases nutrients (phosphorus and nitrogen) through enhanced wastewater treatment and addresses aging infrastructure



**STORMWATER**

Addresses stormwater runoff from developed lands, such as parking lots, sidewalks, and rooftops



# Co-Benefits of Clean Water Projects

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- Improve fish and wildlife habitat
- Protect against the impacts of flooding
- Improving infrastructure
- Increase work opportunities for local organizations
- Provide socially distant recreation opportunities



# Clean Water Accountability Measures

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**Investment measures** of how State of Vermont invests in clean water projects from planning to design and implementation



**Project output measures** that quantify the results of state-funded clean water projects



**Education measures** on outreach and technical assistance to support, identify, and develop clean water projects



**Pollutant reduction measures** of estimated nutrient load reductions achieved by clean water projects



# Report Purpose & Scope

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## Part 1: Vermont Clean Water Investment Report

Geographic Focus:  
Statewide



Program Focus:  
State funding only



## Part 2: Lake Champlain TMDL Progress Report

Geographic Focus:  
Lake Champlain Basin



Program Focus:  
State and federal funding, and  
regulatory programs





# Part 1: Vermont Clean Water Investment Report

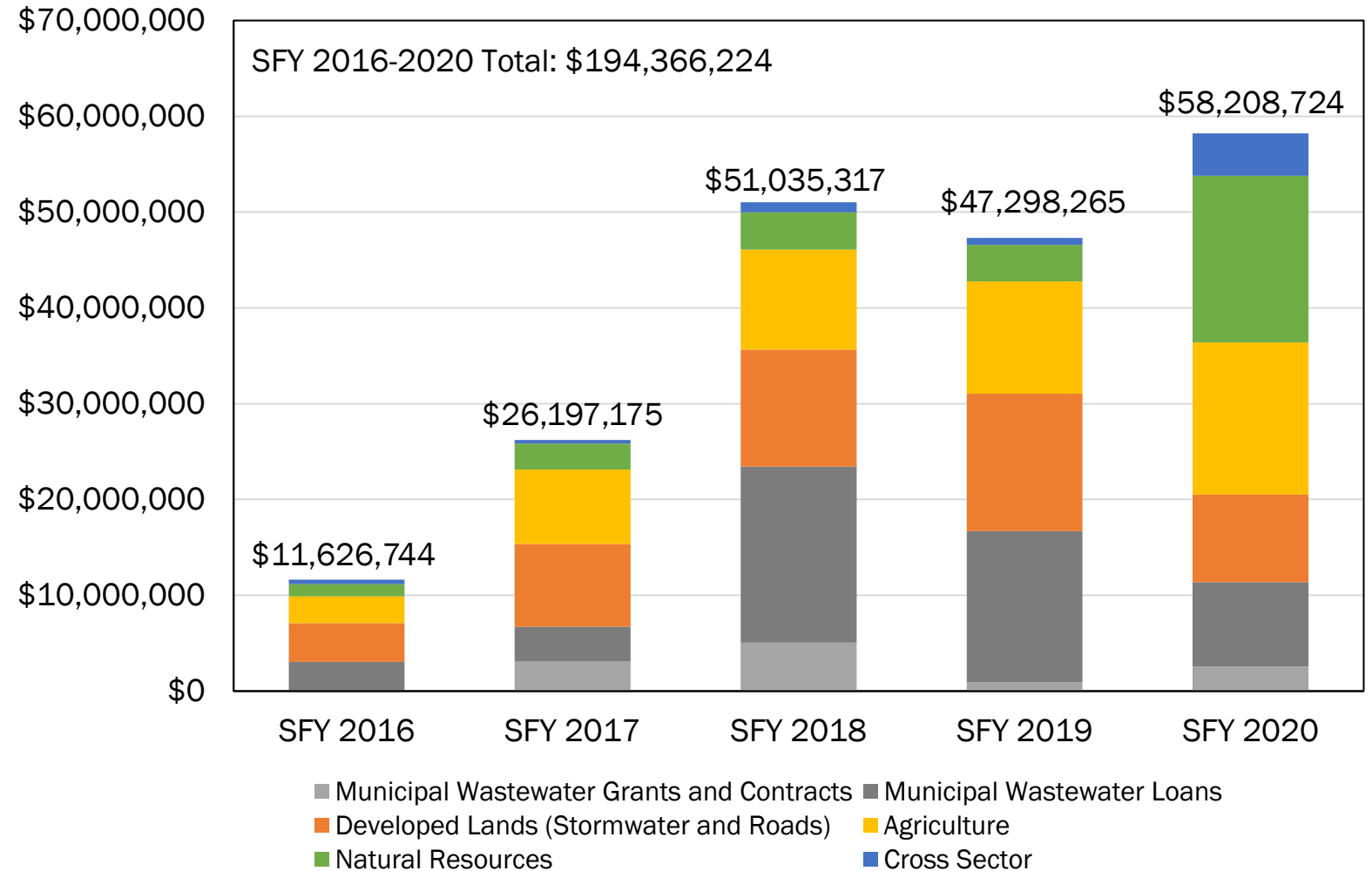
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# State Clean Water Investments



- State of Vermont agencies invested \$194 million in clean water projects from SFY 2016 to 2020
- State investments leveraged \$70 million in local and federal funds, in addition to loan repayment
- Investments occur across all land use sectors
- 81% of investments used for project implementation



# State-Funded Project Outputs



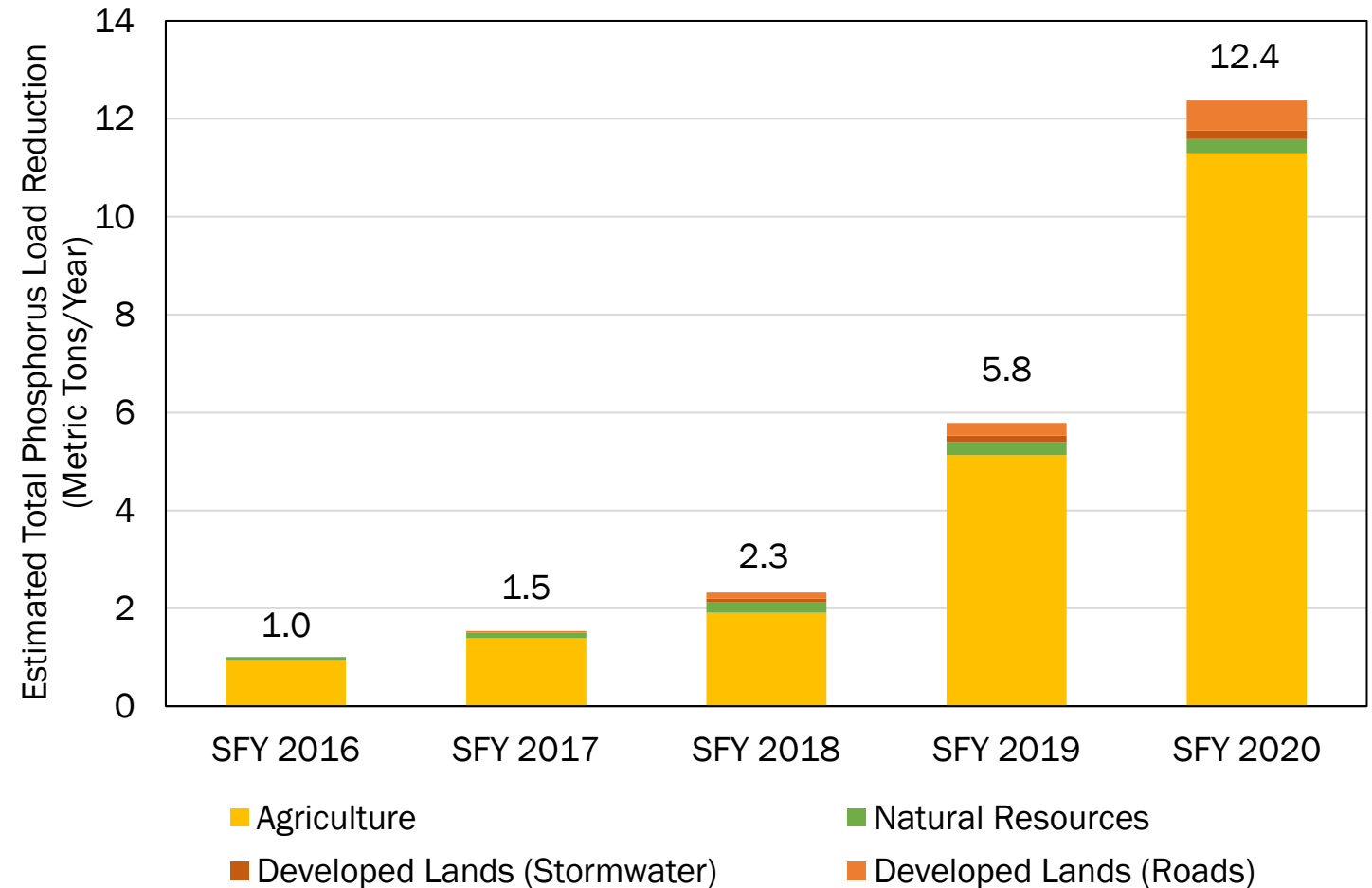
- 2,000 outreach events reaching over 57,000 attendees providing 5,970 hours of education
- 90,000 acres of agricultural conservation practices implemented
- 200 municipal road miles improved
- 332 acres of impervious/hard surface treated by stormwater practices
- 290 riparian acres actively restored
- 1,200 riparian acres passively restored through conservation



# State-Funded Phosphorus Reductions



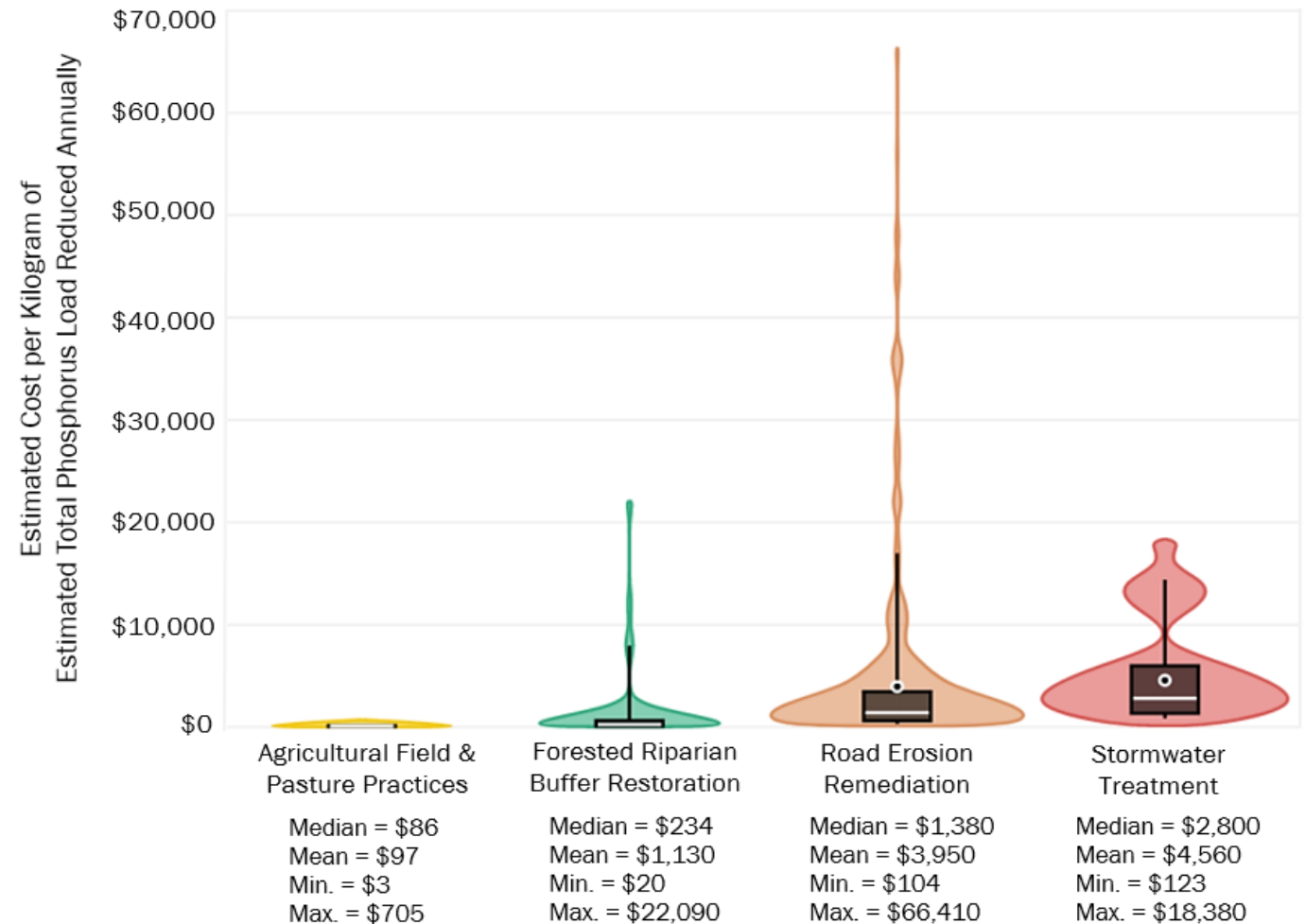
- Estimated 12.4 metric tons (27,000 pounds) of total phosphorus loading reduced in Lake Champlain & Lake Memphremagog basins in SFY 2020
- Estimated total phosphorus reductions doubled since SFY 2019
- Most total phosphorus reductions from the agricultural sector
- Practice implementation must be maintained for reductions to continue in future years



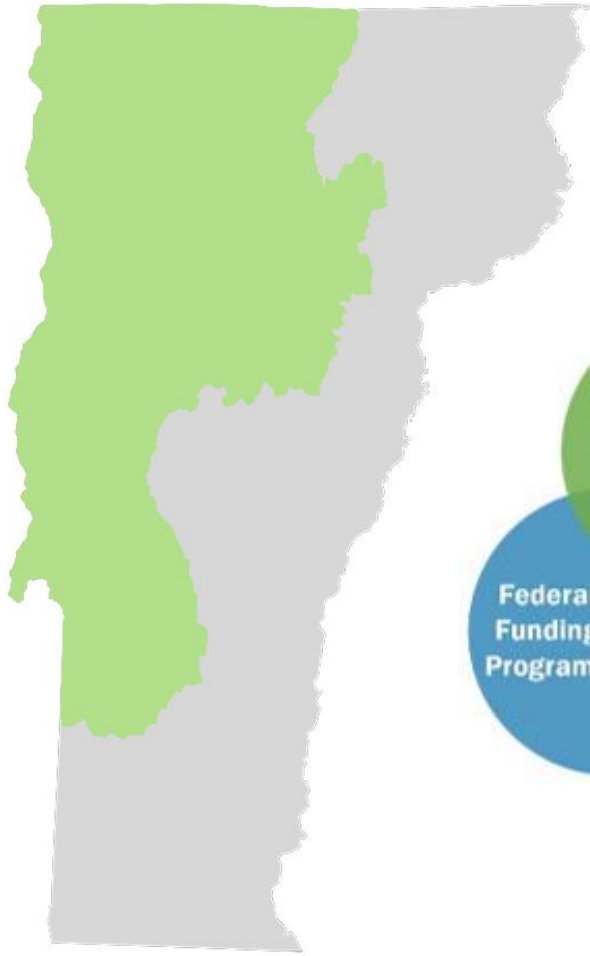
# State Cost Effectiveness



- Cost effectiveness is the state cost per kilogram of estimated total phosphorus load reduced over the project lifespan
- Agricultural field and pasture practices are the most cost effective
- Stormwater treatment is relatively the most expensive of these categories







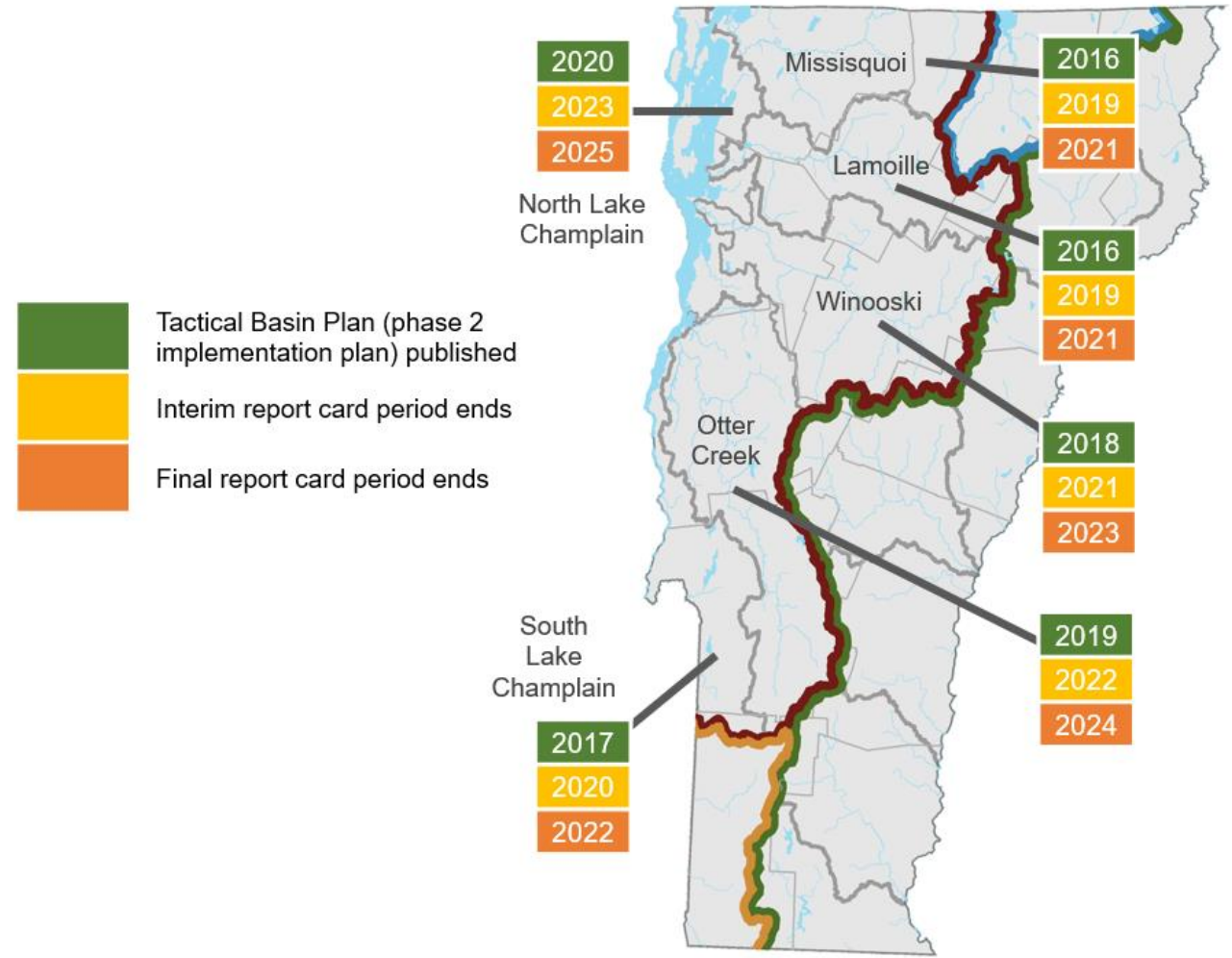
## Part 2: Lake Champlain TMDL Progress Report

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# Lake Champlain TMDL Accountability Framework



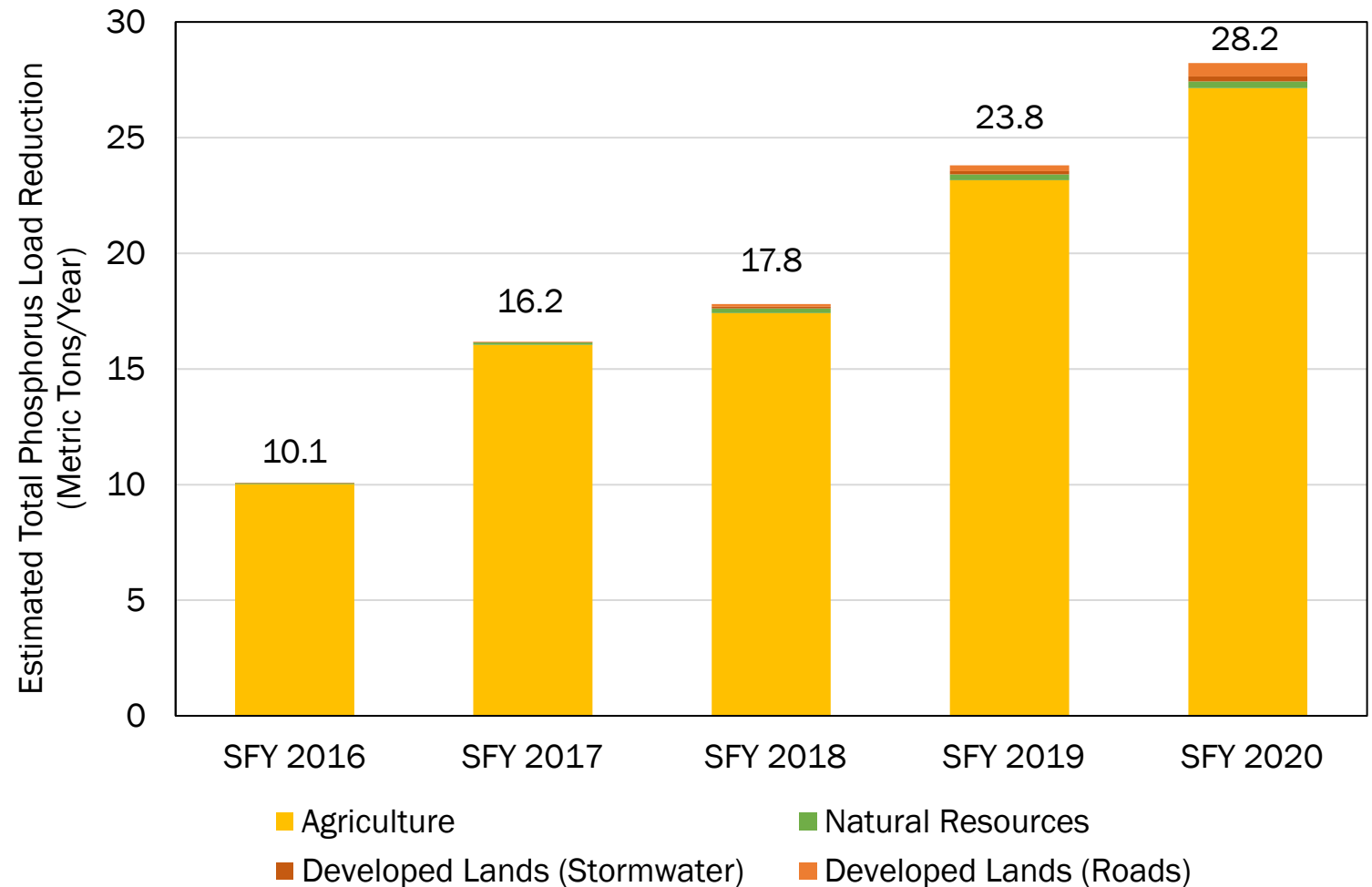
- Phase 1: Programmatic Building Blocks - *Completed*
- Phase 2 and beyond: Tactical Basin Planning and Implementation Tables
  - Implementation strategies established
  - Interim report
  - Final report



# Lake Champlain Basin Phosphorus Reductions



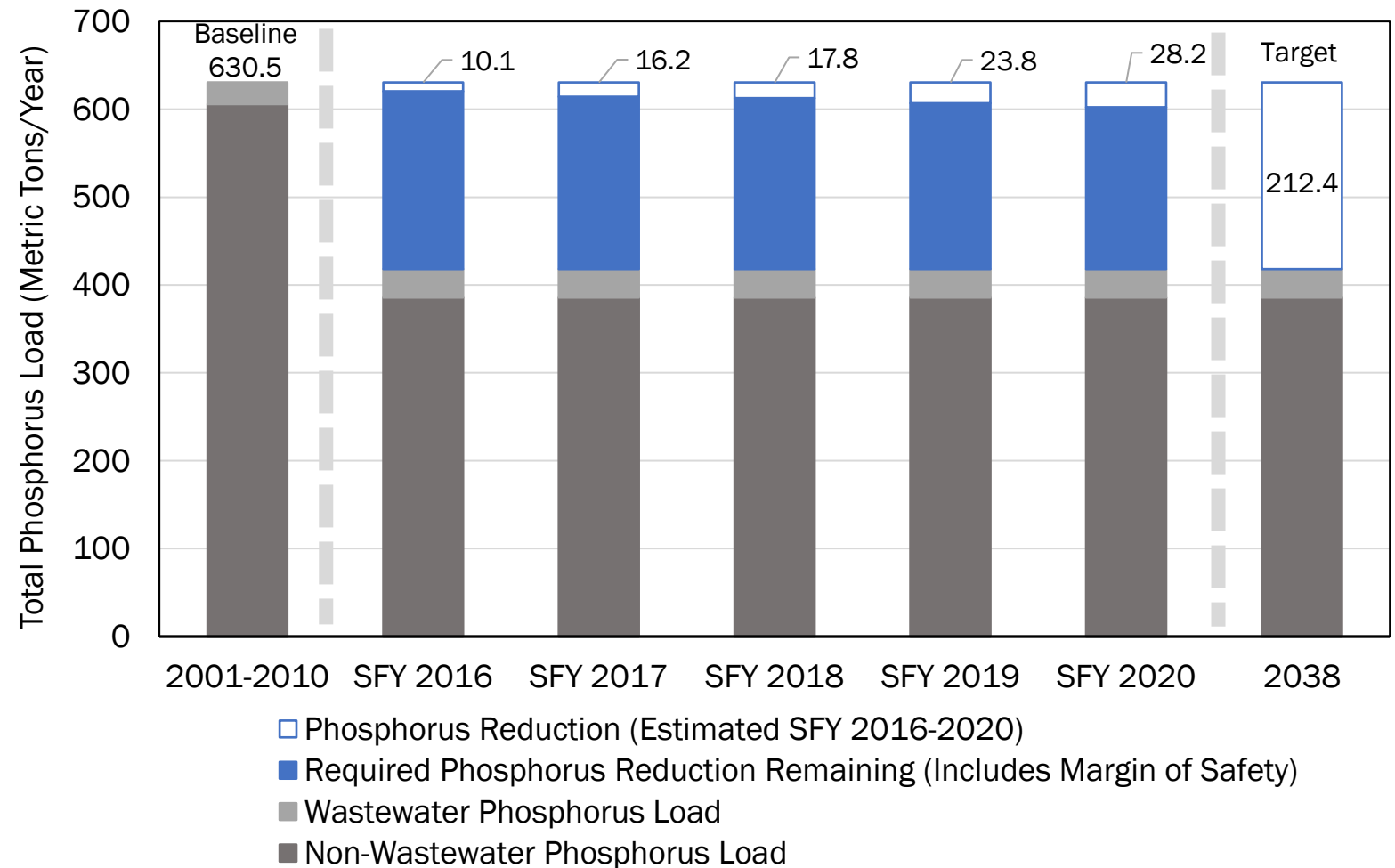
- An estimated 28.2 metric tons (62,000 pounds) of total phosphorus loading reduced in SFY 2020
- Most phosphorus reductions result from agricultural practices funded through US Department of Agriculture Natural Resources Conservation Service (USDA NRCS)



# Lake Champlain TMDL Progress



- Achieved 13% of the total phosphorus load reduction required for Lake Champlain to meet water quality standards in SFY 2020
- Estimated not measured results
- External variables, such as climate change and land use change, will affect TMDL progress





# Report Summary & Next Steps

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- State of Vermont investments are improving water quality in rivers, lakes and wetlands, but large and complex ecosystems will take many years to recover
- Estimated phosphorus load reductions are expected to increase in coming years
  - New regulatory programs (e.g., Three Acre Stormwater permit)
  - Long term funding source
  - New methods for estimating phosphorus reductions
- Continued investments and water quality stewardship are paramount for long-term success



## Welcome to the Clean Water Interactive Dashboard

The Clean Water Interactive Dashboard (CWID) is a data visualization tool, built using Microsoft Power BI, that allows interested parties to filter and customize Vermont's clean water data presented in the [Vermont Clean Water Initiative 2020 Performance Report](#). Click on the links below to navigate to each page of data.

CWID presents statewide data on the following three clean water accountability measures, as well as project cost effectiveness, for state fiscal years 2016 to 2020.



**Investment measures** of how the State of Vermont invests in clean water projects from planning to design and implementation



**Project output** measures that quantify the results of clean water projects



**Pollutant reduction measures** of estimated nutrient load reductions achieved by clean water projects



[Investments](#)



[Project Development & Output Measures](#)



[Phosphorus Reductions by Tactical Basin Plan](#)



[Phosphorus Reductions by Lake Segment Basin](#)



[Cost Effectiveness](#)

For instructions and tips on how to interact with these clean water data, please visit the [Clean Water Interactive Dashboard Help page](#).





## Questions?

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